CLAIMS

WHAT IS CLAIMED IS:

1. A method for converting a source intensity map into a target intensity map having a geometry compatible with a desired multi-leaf collimator configuration, each of the source intensity map and the target intensity map having a geometry defining sampling points of cells within the maps, the method comprising:

defining a field on an object for radiation delivery, said field including a plurality of cells defining the source intensity map, each of said plurality of cells having a treatment intensity level;

creating an intermediate intensity map geometry such that the intermediate map contains sampling points of the source intensity map and the target intensity map;

defining treatment intensity levels for cells of the intermediate map; and

calculating treatment intensity levels for cells of the target intensity map based on the intensity level of the intermediate map cells.

2. The method of claim 1 wherein defining treatment intensity levels for the intermediate map cells comprises retrieving the treatment intensity levels from a treatment planning system and wherein the source intensity map and the intermediate intensity map have the same geometry and intensity levels.

3. The method of claim 1 wherein defining treatment intensity levels for the intermediate map cells comprises calculating the intermediate map treatment intensity levels based on the source map treatment intensity levels.

4. The method of claim 3 wherein calculating the intermediate map treatment intensity levels comprises interpolating or extrapolating using source map treatment intensity levels.

5. The method of claim 1 wherein calculating treatment intensity levels for cells of the target intensity map comprises down sampling values from the intermediate intensity map.

6. The method of claim 5 wherein down sampling values comprises performing an interpolation or extrapolation process.

7. The method of claim 1 further comprising delivering a radiation treatment with the desired multi-leaf collimator configuration from the target intensity map.

8. The method of claim 1 further comprising creating an intensity map for virtual micro intensity modulation radiation therapy based on the target intensity map.

9. A system for converting a source intensity map into a target intensity map having a geometry compatible with a desired multi-leaf collimator configuration, each of the source intensity map and the target intensity map having a geometry defining sampling points of cells within the map, the system comprising:

a processor operable to receive a source intensity map geometry, target intensity map geometry, and treatment intensity levels for cells of the source intensity map, create an intermediate map geometry containing sampling points of the source map and the target map, define treatment intensity levels for cells of the intermediate intensity map, calculate treatment intensity levels for cells of the target intensity map based on the intensity level of the intermediate map cells, and output the target intensity map; and

memory configured to at least temporarily store the source intensity map, intermediate intensity map, and the target intensity map.

10. The system of claim 9 wherein receiving the treatment intensity levels and the geometry for the source map comprises receiving an intensity map from a treatment planning system and wherein the source map and the intermediate map have the same geometry and intensity treatment levels.

11. The system of claim 9 wherein the intermediate map treatment intensity levels are calculated from the source map treatment intensity levels.

12. The system of claim 9 further comprising a collimator having multiple leaves for blocking radiation from said source and defining an opening between the radiation source and said object, the collimator having the desired multi-leaf collimator configuration.

13. The system of claim 12 wherein the multi-leaf collimator is operable to provide radiation treatment with a resolution approximately one half of the width of the leaves.